Operating Instructions
Safety Systems with Locking
ESL-IH-AR

Contents

Correct use 3

Exclusion of liability and warranty 4

General safety instructions 5

Function 5

System overview 6
Modules 6
Dimension drawing 6

Changing the connection 7

Mounting 8

Electrical connection 9
Safety in case of faults 11
Fuse protection for power supply 11
Requirements for connection cables 11
Maximum cable lengths 12
Connector assignment 13
Connection of a single ESL 14
Connection of several ESL devices in an AR switch chain 15

Setup 16
LED indicators 16
Teach-in function for handle module (only ESL unicode) 16
Mechanical function test 17
Electrical function test 17

System status table 18

Technical data 19
Technical data for safety system ESL 19

Ordering information and accessories 21

Inspection and service 22

Service 22

Declaration of conformity 23

Correct use

The safety system ESL is an interlocking device without guard locking.

In combination with a safety guard, this safety component prevents dangerous machine movements from being performed for as long as the safety guard is opened. A stop command is triggered if the safety guard is opened during the dangerous machine function.

Before safety switches are used, a risk assessment must be performed on the machine, e.g. in accordance with:

- EN ISO 13849-1, Safety of machinery. Safety related parts of control systems. General principles for design
- EN ISO 12100, Safety of machinery - General principles for design - Risk assessment and risk reduction
- IEC 62061, Safety of machinery. Functional safety of safety-related electrical, electronic and programmable electronic control systems.

Correct use includes compliance with the relevant requirements for installation and operation, for example

- EN ISO 13849-1, Safety of machinery. Safety related parts of control systems. General principles for design
- EN 1088, Safety of machinery. Interlocking devices associated with guards. Principles for design and selection
- EN 60204-1, Safety of machinery. Electrical equipment of machines. General requirements
- EN 60947-5-3, Specification for low-voltage switchgear and controlgear. Control circuit devices and switching elements. Requirements for proximity devices with defined behavior under fault conditions

The safety system ESL can only be combined with the intended modules in the ESL system family.

On the modification of system components, EUCHNER provides no warranty for function.

Several devices are only allowed to be connected in series using devices intended for series connection with the ESL. Check the operating instructions for the related device. A combination with other ESL devices or devices from other manufacturers is not allowed.

A maximum of 20 devices are allowed to be operated in a switch chain.

Important!

- The user is responsible for the integration of the device into a safe overall system. For this purpose, the overall system must be validated, e.g. in accordance with EN ISO 13849-2.
- Correct use requires observing the permissible operating parameters (see Technical data).
- If a product data sheet is included with the product, the information on the data sheet applies in case of discrepancies with the operating instructions.
- In the estimation of the PL for the overall system, a maximum value of 100 years can be assumed for the $MTTF_d$ according to the limit value in EN ISO 13849-1:2008, section 4.5.2. This corresponds to a minimum value for the PFH_d of $2.47x10^{-8}$/h.
- When up to 11 devices are connected in series, these limit values can be assumed for the entire switch chain as a subsystem. As a subsystem, this switch chain achieves PL e.

Important!

- In the case of series connection of more than 11 devices, the PFH_d can be calculated according to one of the stated methods in EN ISO 13849-1:2008, Section 4.5.1.
- If the simplified method according to section 6.3 of EN ISO 13849:2008-12 is used for validation, the Performance Level (PL) might be reduced when more than 11 devices are connected in series.

Exclusion of liability and warranty

In case of failure to comply with the conditions for correct use stated above, or if the safety instructions are not followed, or if any servicing is not performed as required, liability will be excluded and the warranty void.

General safety instructions

Safety switches fulfill personal protection functions. Incorrect installation or tampering can lead to fatal injuries to personnel.

Check the safe function of the safety guard particularly

- after any setup work
- each time after the replacement of an ESL module
- after an extended period without use
- after every fault

Independent of these checks, the safe function of the safety guard should be checked at suitable intervals as part of the maintenance schedule.

Warning!

Danger of fatal injury in the event of incorrect connection or incorrect use.
- Safety switches must not be bypassed (bridging of contacts), turned away, removed or otherwise rendered ineffective.
  On this topic pay attention in particular to the measures for reducing the possibility of bypassing from EN 1088:1995+A2:2008, section 5.7.

The switching operation may be triggered only by the handle module ESL-H... designated for this purpose.
The device is only allowed to be installed and placed in operation by authorized personnel
- who are familiar with the correct handling of safety components
- who are familiar with the applicable EMC regulations
- who are familiar with the applicable regulations on health and safety and accident prevention
- who have read and understood the operating instructions.

Important!

Prior to use, read the operating instructions and keep these in a safe place. Ensure the operating instructions are always available during mounting, setup and servicing work. EUCHNER cannot provide any warranty in relation to the readability of the CD for the storage period required. For this reason you should archive a printed copy of the operating instructions. If you should lose the operating instructions, you can download this document from www.EUCHNER.de.

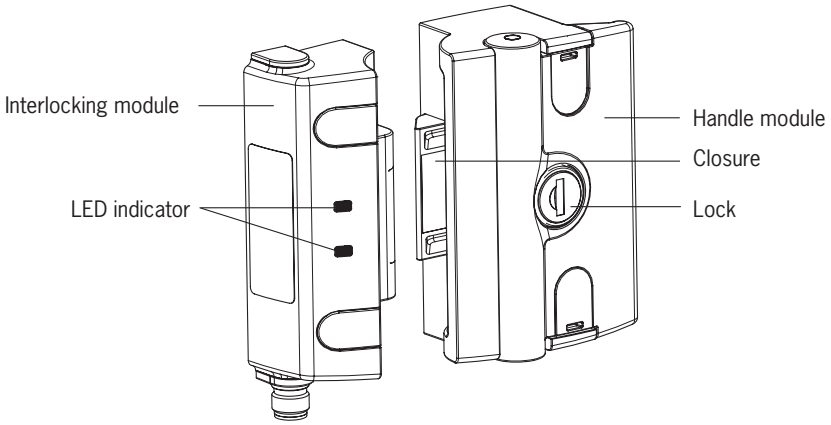
Function

Together with a handle module, the interlocking module makes it possible to interlock movable safety guards. The combination also serves as a mechanical door stop at the same time.

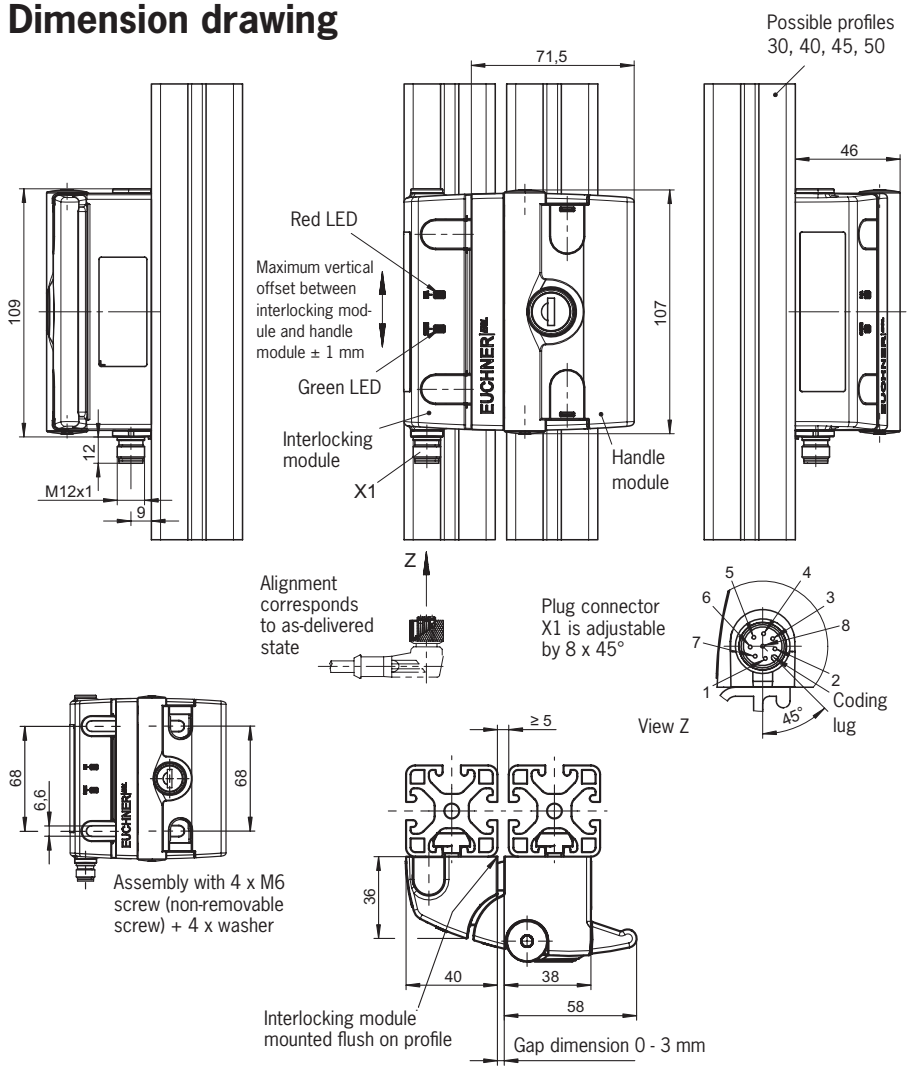
The interlocking module detects the position of the closure and thereby the position of the safety guard.

System overview

Modules



Dimension drawing



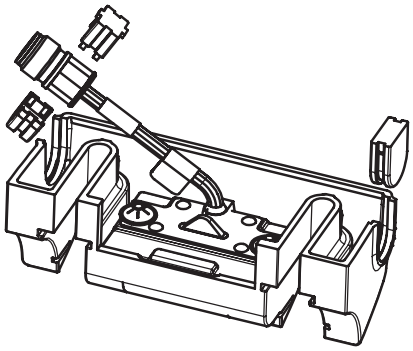
Changing the connection

The plug connector position can be adapted to suit the installation. This change must be performed before assembly.

1. Press the plug connector with the plastic inserts out of the profile slot.

➡ To adjust only the cable exit for angled plug connectors, align the plug and the inserts accordingly and press the plug back into the profile slot.

2. Remove the connection cap on the opposite side.
3. For angled plug connectors, align the plug and the inserts accordingly.
4. Press the plug into the profile slot on the opposite side.
5. Seal the other opening with the connection cap.



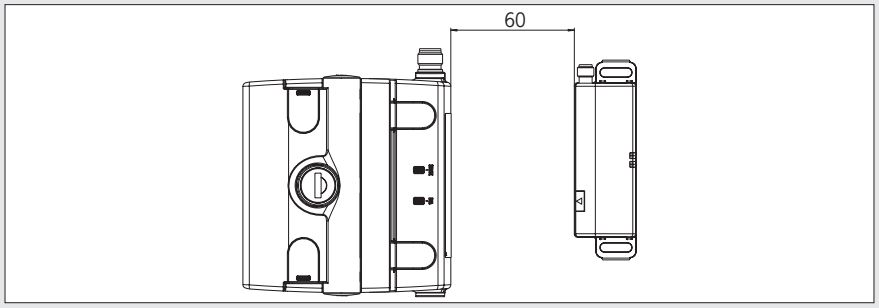
Mounting

Caution!

- The device is not suitable for use on sliding doors.
- When mounting, take care not to trap the cables between the device and the profile.
- Permanently connect the actuator and handle module to the safety guard so that it cannot be detached, e.g. using non-removable screws.

Important!

- When mounting different transponder-coded safety switches, observe the stipulated minimum distance to avoid mutual interference.

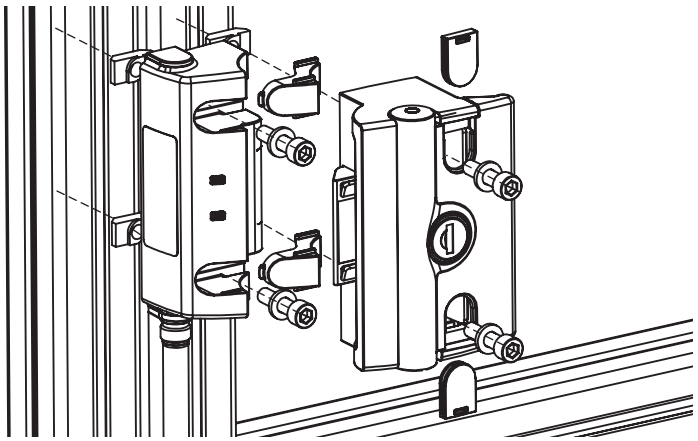


With two-wing hinged doors, one of the two door wings additionally must be latched mechanically.

1. Fasten the ESL using 4 M6 screws and washers.

➡ Please note that the gap dimension between handle module and interlocking module is 0 - 3 mm; the max. vertical offset is ± 1 mm.

2. Tighten the screws to a torque of max. 10 Nm.
3. Fit the enclosed cover caps to protect against tampering.



Electrical connection

The following connection options are available:

- Separate operation
- Series connection with Y-distributors from EUCHNER
- Series connection, e.g. with wiring in the control cabinet.

Warning!

In case of an error, loss of the safety function through incorrect connection.

- To ensure safety, both safety outputs (FO1A and FO1B) must always be evaluated.
- The monitoring output OD must not be used as a safety output.
- Lay the connection cables with protection to prevent the risk of short circuits.

Caution!

Risk of damage to equipment or malfunctions as a result of incorrect connection.

- Do not use a control system with pulsing or switch off the pulsing function in your control system. The device generates its own clock signal on the output lines FO1A/FO1B. A downstream control system must tolerate these test pulses, which may have a length of up to 1 ms.
  The pulses are also present when the safety outputs are switched off. Depending on the inertia of the connected device (control system, relay, etc.), this can lead to short switching processes.
- The inputs on an evaluation unit connected must be positive-switching, as the two outputs on the safety switch deliver a level of +24 V in the switched-on state.
- All the electrical connections must either be isolated from the mains supply by a safety transformer according to IEC EN 61558-2-6 with limited output voltage in the event of a fault, or by other equivalent isolation measures.
- For use and operation as per the c UL us requirements*, a power supply with the feature "for use in class 2 circuits" must be used. The same requirement applies to the safety outputs.
  Alternative solutions must comply with the following requirements:
  a) Electrically isolated power supply unit with a max. open-circuit voltage of 30 V/DC and a limited current of max. 8 A.
  b) Electrically isolated power supply unit in combination with fuse as per UL248. This fuse should be designed for max. 3.3 A and should be integrated into the 30 V DC voltage section.
- For use and applications as per the requirements of c UL us*, a connection cable listed under the UL category code CYJV2 must be used.
- All electrical outputs must have an adequate protective circuit for inductive loads. The outputs must be protected with a free-wheeling diode for this purpose.
- Power devices, which are a powerful source of interference, must be installed in a separate location away from the input and output circuits for signal processing. The cable routing for safety circuits should be as far away as possible from the cables of the power circuits.
- In order to avoid EMC interference, the physical environmental and operating conditions at the installation site of the device must comply with the requirements according to the standard EN 60204-1:2006, section 4.4.2 (EMC).

* Note on the scope of the UL approval: Only for applications as per NFPA 79 (Industrial Machinery)
The devices are tested according to the requirements of UL508 (protection against electric shock and fire).

Important!

If the device does not appear to function when operating voltage is applied (e.g. green STATE LED does not flash), the safety switch must be returned unopened to the manufacturer.

Safety in case of faults

- The operating voltage U_B is reverse polarity protected.
- The contacts FI1A/FI1B and FO1A/FO1B are short circuit-proof
- A short circuit between FI1A and FI1B or FO1A and FO1B is detected by the switch.
- A short circuit in the cable can be excluded by laying the cable with protection.

Fuse protection for power supply

The power supply must be provided with fuse protection depending on the number of devices and current required for the outputs. The following rules apply:

Max. current consumption of an individual device I_{max}

I_{max} = I_{UB} + I_{OD} + $I_{FO1A+FO1B}$

I_{UB} = Switch operating current (max. 40 mA)

I_{OD} = Monitoring output load current (max. 50 mA)

$I_{FO1A+FO1B}$ = Load current of safety outputs FO1A + FO1B (2 x max. 100 mA)

Max. current consumption of a switch chain ΣI_{max}

ΣI_{max} = $I_{FO1A+FO1B}$ + n x (I_{UB} + I_{OD})

n = Number of connected devices

Requirements for connection cables

Caution!

Risk of damage to equipment or malfunctions as a result of incorrect connection cables.

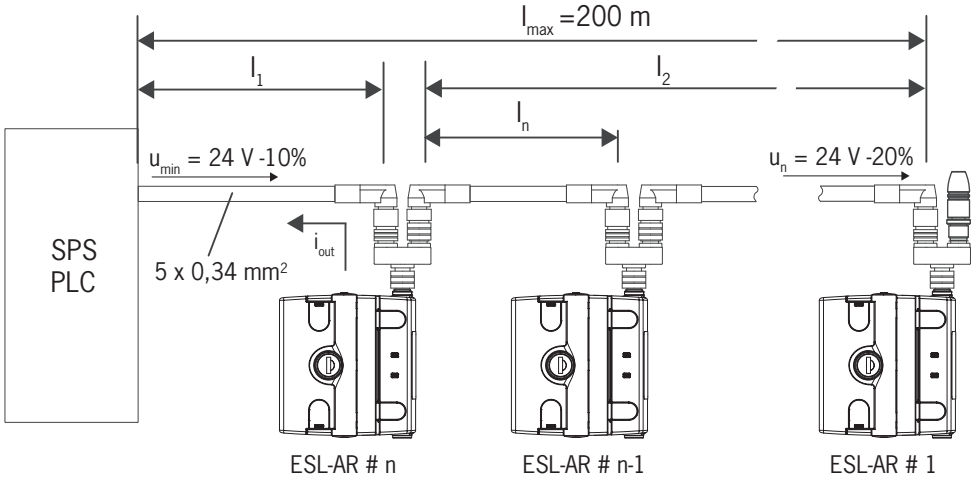
- Use connection components and connection cables from EUCHNER
- On the usage of other connection components, the requirements in the following table apply. EUCHNER provides no warranty for safe function in case of failure to comply with these requirements.

Observe the following requirements with respect to the connection cables:

Parameter	Value	Unit
Conductor cross-section min.	0.14 ... 0.34	mm²
R max.	150	Ω/km
C max.	120	nF/km
L max.	0.65	mH/km
Recommended cable type	LIYY 8x or 5x 0.34 mm²	

Maximum cable lengths

Switch chains are permitted up to a maximum overall cable length of 200 m taking into account the voltage drop as a result of the cable resistance (see table below with example data and case example).



n Max. number of devices	I_{OD} (mA) Possible output current per channel FO1A/FO1B	l_1 (m) Max. cable length from the last device to the control system
5	10	150
	25	100
	50	80
	100	50
6	10	120
	25	90
	50	70
	100	50
10	10	70
	25	60
	50	50
	100	40

Determining cable lengths using the example table

Example: 6 devices are to be used in series. Cabling with a length of 40 m is routed from a safety relay in the control cabinet to the last device (#6). Cables with a length of 20 m each are connected between the individual ESL devices.

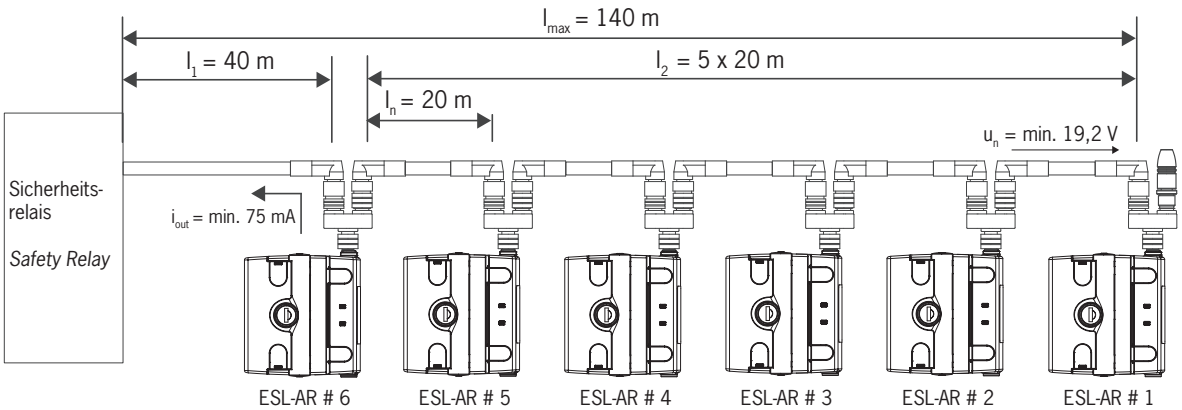


Figure 1: Circuit example with six ESL-AR

A safety relay is connected downstream which consumes 75 mA at each of the two safety inputs. This operates over the whole temperature range with a voltage of 19.2 V (corresponds to 24 V -20%).

All the relevant values can now be determined using the example table:

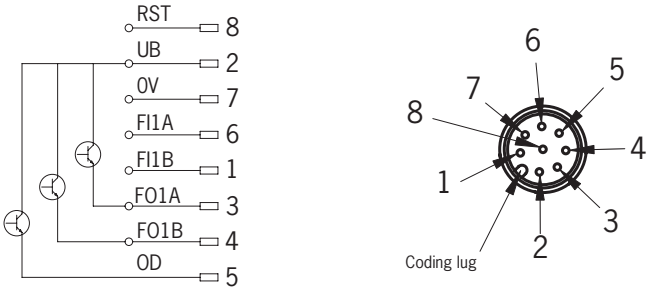
1. Select the corresponding section in the column n (max. number of devices). Here: 6 switches.
2. In column I_{OD} (possible output current per channel FO1A/FO1B), find a current greater than or equal to 75 mA. Here: 100 mA.

➡ The maximum cable length from the control system to the start of the switch chain is listed in column I_1. Here: a length of 50 m is permitted.

Result: The desired cable length I_1 of 40 m is below the permitted value from the table. The overall length of the switch chain I_{max} of 140 m is less than the maximum value of 200 m.

➡ The planned application is therefore functional in this form.

Connector assignment



View on the connection side of the safety switch

Figure 2: Connector assignment

Pin	Designation	Description	Wire color as per DIN 47100
1	FI1B	Enable input for channel 2	white
2	UB	Power supply, DC 24 V	brown
3	FO1A	Safety output, channel 1	green
4	FO1B	Safety output, channel 2	yellow
5	OD	Monitoring output	gray
6	FI1A	Enable input for channel 1	pink
7	0V	Ground, DC 0 V	blue
8	RST	Reset input for hardware reset	red

Connection of a single ESL

If a single ESL is used, connect the device as shown in Figure 3. The OD output can also be connected here to a control system as a monitoring output.

The device can be reset via the RST input. To do this, a voltage of 24 V is applied to the RST input for at least 3 seconds. The supply voltage to the switch is interrupted during this time. The RST input must be connected to 0 V if it is not used.

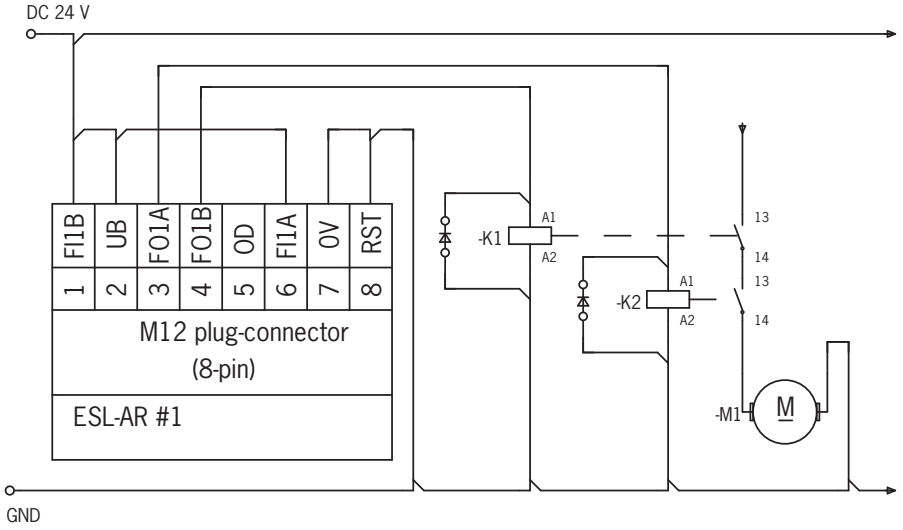


Figure 3: Connection example for a single ESL-AR

Warning!

In case of an error, loss of the safety function through incorrect connection.

- To ensure safety, both safety outputs (FO1A and FO1B) must always be evaluated. Single-channel use of the safety outputs leads to a reduction of the category in accordance with EN ISO 13849-1.

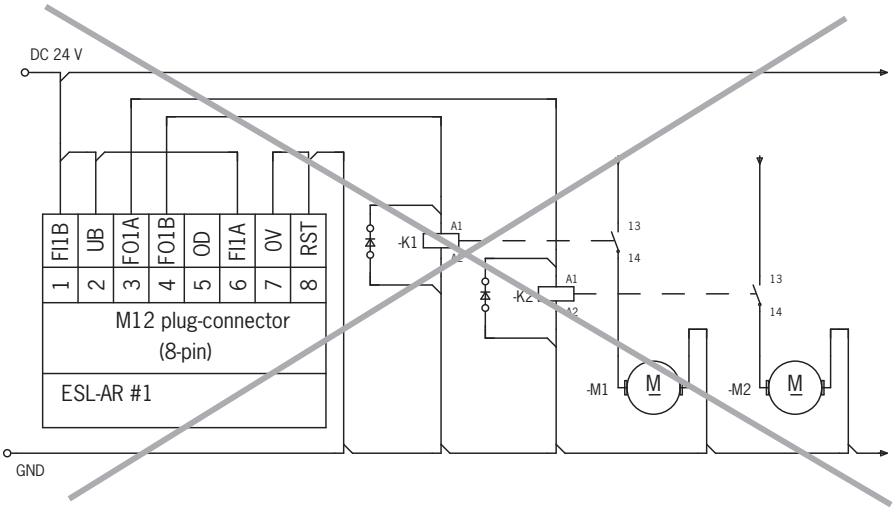


Figure 4: Example of incorrect connection.

Connection of several ESL devices in an AR switch chain

Important!

- A switch chain may contain a maximum of 20 safety switches.
- In the estimation of the PL for the overall system, a maximum value of 100 years can be assumed for the $MTTF_d$ according to the limit value in EN ISO 13849-1:2008, section 4.5.2. This corresponds to a minimum value for the PFH_d of $2.47x10^{-8}$/h.

The devices are connected in series using plug connectors and Y-distributors. If a safety door is opened or if a fault occurs on one of the switches, the system shuts down the machine. A higher level control system can, however, not detect which safety door is open or on which switch a fault has occurred.

The switches can be reset via the RST input. To do this, a voltage of 24 V is applied to the RST input for at least 3 seconds. The supply voltage to the switches is interrupted during this time. The RST input must be connected to 0 V if it is not used.

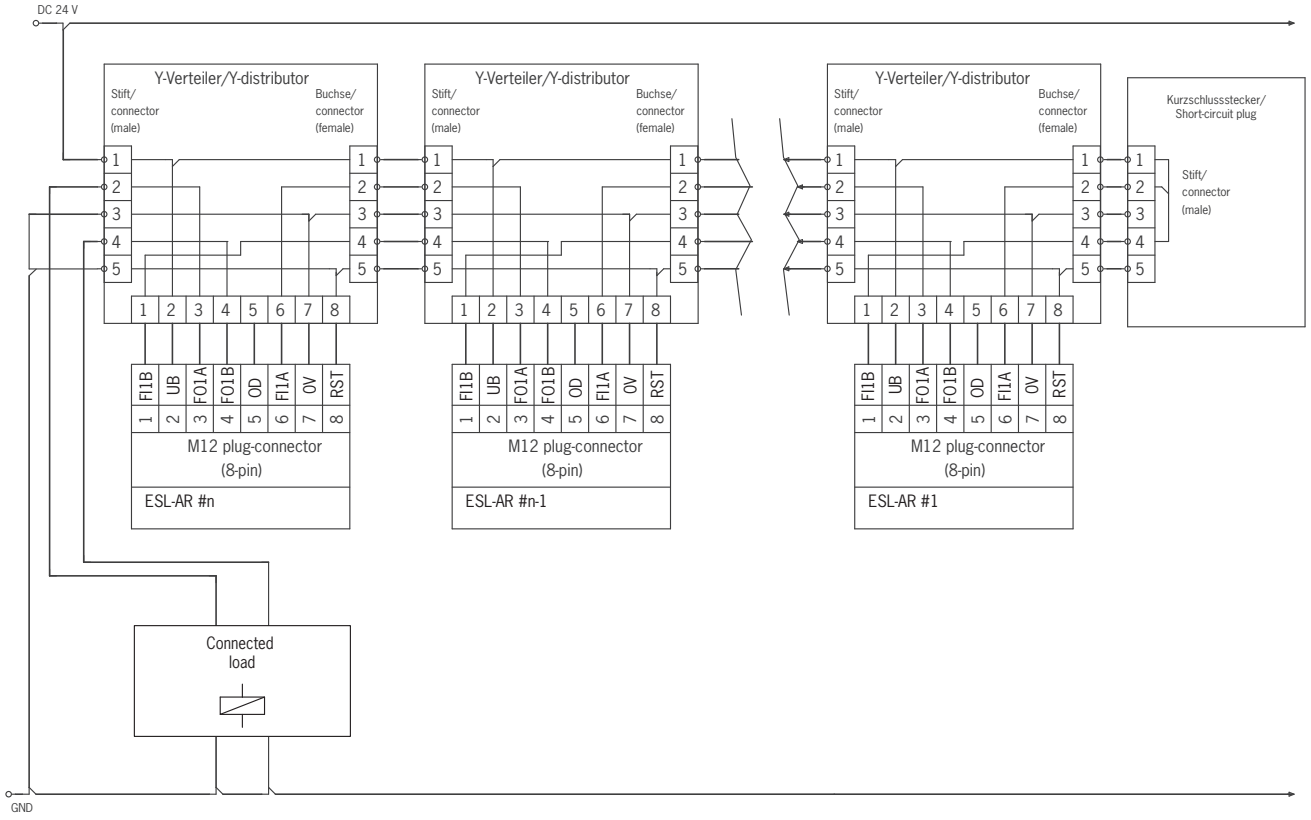


Figure 5: Connection example for series connection of several ESL-AR devices

Setup

LED indicators

LED	Color	State	Significance
STATE	green	illuminated	Normal operation
		flashing	Teach-in operation or Power Up (for further signal function see status table)
DIA	red	illuminated	- Internal electronics fault - Fault at the inputs/outputs

Teach-in function for handle module (only ESL unicode)

The handle module must be assigned to the interlocking module using a teach-in function before the system comprising interlocking module and handle module forms a functional unit.

During a teach-in operation, the safety outputs are in high-resistance state, i.e. the system is in the safe state.

When a handle module for which teach-in operation is possible is in the operating distance, monitoring output OD indicates this with a HIGH signal.

Important!

- The interlocking module disables the code for the previous handle module if teach-in is carried out for a new handle module. Teach-in is not possible again immediately for this actuator if a new teach-in operation is carried out. The disabled code is deleted again in the interlocking module only after a third code has been taught.
- The interlocking module can only be operated with the last handle module taught.
- The interlocking module enters normal operation when it detects the taught handle module after power up.
- If the interlocking module detects a disabled handle module during teach-in operation, it enters a fault state at the end of the teach-in operation.
- If the closure is within the operating distance for less than 30 seconds, the handle module is not taught in and the interlocking module enters the fault state.

Teaching in handle module

1. Fit handle module.
2. Close safety guard. Check for correct alignment and distance and readjust if necessary.
3. Apply operating voltage to the interlocking module.

➡ The green LED flashes quickly (approx. 5 Hz)
A self-test is performed during this time (approx. 8 s). Teach-in operation starts, green LED flashes slowly (approx. 1 Hz). The teach-in operation is ended after approx. 30 seconds and is positively acknowledged with an alternating red/green flashing sequence.

4. To activate the handle module's code from the teach-in operation in the interlocking module, the operating voltage must then be switched off at the interlocking module for min. 3 seconds. As an alternative, 24V can be applied to the input RST for min. 3 seconds.

Mechanical function test

It must be possible to insert the closure easily into the interlocking module. Close the safety guard several times to check the function.

Electrical function test

After installation and any fault, the safety function must be fully checked. Proceed as follows:

Warning!

Danger of fatal injury as a result of faults in installation and functional check.
- Before carrying out the functional check, make sure that there are no persons in the danger area.
- Observe the valid accident prevention regulations.

1. Switch on operating voltage.

- The interlocking module carries out a self-test.
  The green STATE LED flashes for 8 s with 5 Hz.
  The STATE LED then flashes at regular intervals.

2. Close all safety guards.

- The machine must not start automatically.
- The green STATE LED illuminates continuously.

3. Enable operation in the control system.

4. Open the safety guard.

- The machine must switch off and it must not be possible to start it as long as the safety guard is open.
- The green STATE LED flashes at regular intervals.

Repeat steps 2-4 for each safety guard.

System status table

Operating mode	Handle module/door position	Safety outputs FO1A and FO1B	LED indicator, output STATE (green)	LED indicator, output DIA (red)	State
Self-test	X	off	5 Hz (8 s)	○	Self-test after power up
Normal operation	closed	on	✳	○	Door closed
	open	off	1 x	○	Door open
	open	off	2 x	○	Door open, no handle module taught (see setup for teach-in operation)
Setup	closed	off	approx. 30 s	○	Teach-in operation
	X	off	∞	✳	Positive acknowledgment after completion of teach-in operation
Fault display	X	off	1 x	✳	Error during teach-in
	X	off	2 x	inverted	Input error (e.g. missing test pulses, illogical switch state from previous switch)
	closed	off	3 x	✳	Faulty handle module (e.g. error in code or code cannot be read)
	X	off	4 x	inverted	Output error (e.g. short circuits, loss of switching ability)
	X	off	5 x	✳	Blocked handle module
	X	off	○	✳	Internal fault (e.g. component faulty, data error)

Key to symbols	
○	LED not illuminated
✳	LED illuminated
5 Hz (8 s)	LED flashes for 8 seconds at 5 Hz
3 x	LED flashes three times
∞	LED flashes continuously
X	Any state

After the cause has been remedied, faults can generally be reset by opening and closing the door. If the fault is still displayed afterward, use the reset function or briefly interrupt the power supply. Please contact the manufacturer if the fault could not be reset after restarting.

Important!

If you do not find the displayed device status in the System status table, this indicates an internal device fault. In this case, you should contact the manufacturer.

Technical data

Note:

If a product data sheet is included with the product, the information on the data sheet applies in case of discrepancies with the operating instructions.

Technical data for safety system ESL

Parameter		Value			Unit
		min.	typ.	max.	
Housing material		Diecast aluminum, black powder coated			
Dimensions		See dimension drawing			
Mass		0.4			kg
Ambient temperature at U_B = DC 24 V		- 20	-	+ 55	°C
Degree of protection		IP 67			
Safety class		III			
Degree of contamination		3			
Installation position		Any			
Connection		M12 plug connector, 8-pin			
Operating voltage U_B (PELV, reverse polarity protected, regulated, residual ripple < 5%)		24 ± 15%			V DC
For the approval according to cULus the following applies		Operation only with UL class 2 power supply according to UL 1310, or equivalent measures			
Current consumption				40	mA
Switching load according to cULus		DC 24 V, class 2			
External fuse (operating voltage)		0.25	-	3	A
Safety outputs (FO1A/FO1B)		Semiconductor outputs, p-switching, short circuit-proof			
- Output voltage [1]					
HIGH	U (FO1A)	U_B-1.5	-	U_B	V DC
HIGH	U (FO1B)				
LOW	U (FO1A/FO1B)	0		1	
Switching current per safety output		1	-	150	mA
Utilization category according to EN IEC 60947-5-2		DC-13 24 V 100 mA Caution: outputs must be protected with a free-wheeling diode in case of inductive loads.			
Monitoring output OD		p-switching, short circuit-proof			
- Output voltage [1]		0.8 x U_B	-	U_B	V DC
- Max. load		-	-	50	mA
Safe switch-off distance s_{ar} in door opening direction [2]		-	-	0	mm
Rated insulation voltage U_i		-	-	75	V
Rated impulse withstand voltage U_{imp}		-	-	0.8	kV
Rated short-circuit current		100			A
Resilience to vibration		In acc. with EN IEC 60947-5-2			
Switching frequency		-	-	0.5	Hz
Repeat accuracy R		≤ 10			%
EMC protection requirements		In acc. with EN IEC 60947-5-3			
Switching delay from state change [3]		-	-	400	ms
Difference time between the two safety outputs		-	10	-	ms
Reliability values acc. to EN ISO 13849-1					
Category		4			
Performance Level		PL e			
PFH_d		1.9×10^{-9} / h			
Mission time		20			years

1) Values at a switching current of 50 mA without taking into account the cable length.
2) An s_{ar} of 0 mm in door opening direction can be assumed for the calculation of characteristic safety values.
3) Corresponds to the risk time according to EN 60947-5-3. This is the maximum switch-off delay for the safety outputs after pulling on the handle module.

Typical system times

Ready delay: After switching on, the unit carries out a self-test for 8 s. The system is ready for operation only after this time.

Risk time according to EN 60947-5-3: If a handle module moves outside the operating distance, the safety outputs FO1A and FO1B on the corresponding interlocking module are deactivated after a maximum of 260 ms. If more than one device is used, the value increases correspondingly (see *System times for switch chains*).

Difference time: The safety outputs FO1A and FO1B switch with a slight delay in relation to each other. They have the same signal state at the latest after a difference time of 10 ms.

System times for a single device

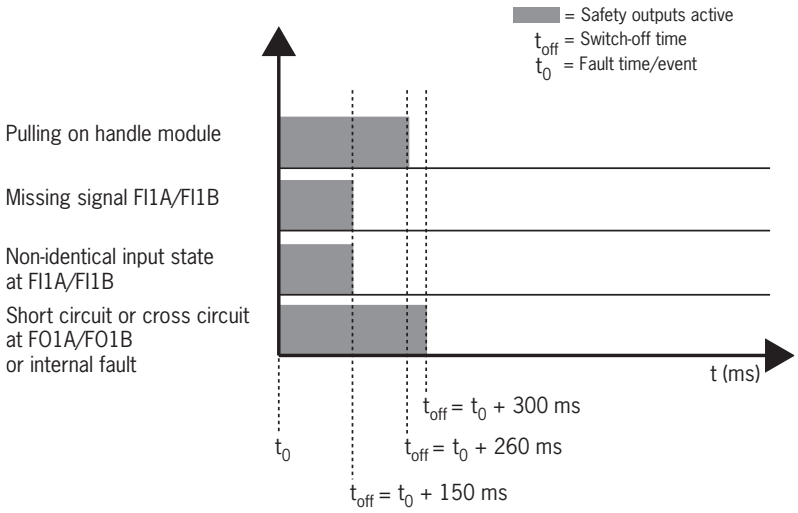

= Safety outputs active
t_{off} = Switch-off time
t_0 = Fault time/event
Pulling on handle module
Missing signal FI1A/FI1B
Non-identical input state at FI1A/FI1B
Short circuit or cross circuit at FO1A/FO1B or internal fault
t (ms)
$t_{off} = t_0 + 300$ ms
t_0
$t_{off} = t_0 + 260$ ms
$t_{off} = t_0 + 150$ ms

Figure 6: System times for single device

System times for switch chains

Important!

The system times shown are maximum values for a circuit arrangement with 20 safety switches connected in series. Shorter times can also be achieved in circuits with fewer switches.

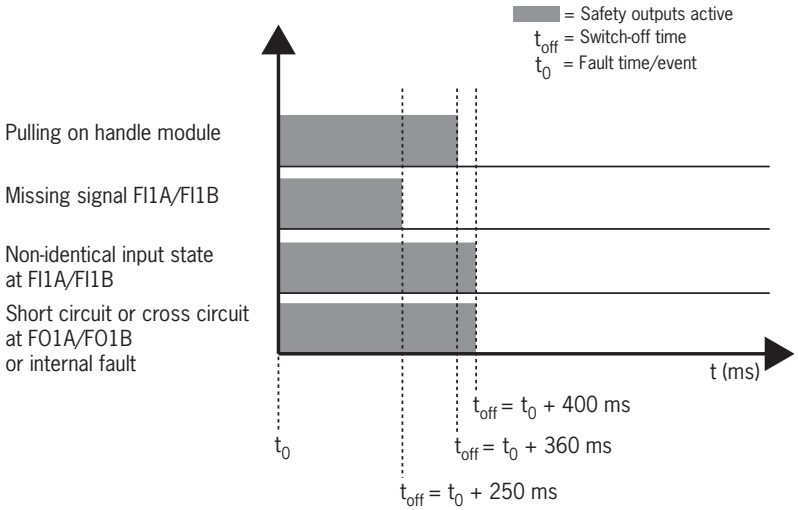
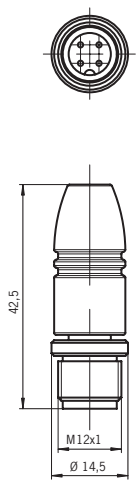

= Safety outputs active
t_{off} = Switch-off time
t_0 = Fault time/event
Pulling on handle module
Missing signal FI1A/FI1B
Non-identical input state at FI1A/FI1B
Short circuit or cross circuit at FO1A/FO1B or internal fault
t (ms)
$t_{off} = t_0 + 400$ ms
t_0
$t_{off} = t_0 + 360$ ms
$t_{off} = t_0 + 250$ ms

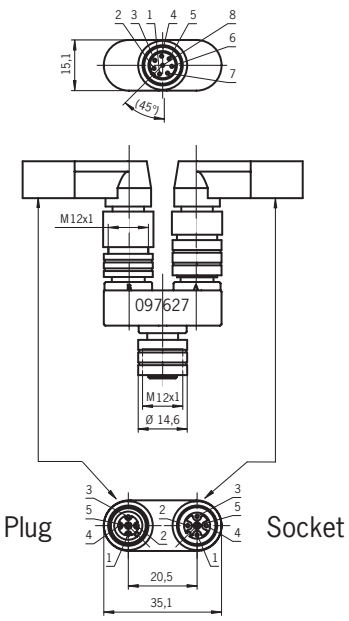
Figure 7: System times for switch chains

Ordering information and accessories

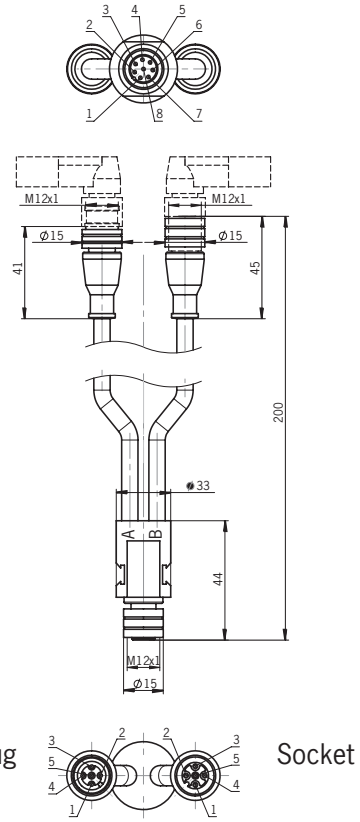
Short circuit connector 097645
4-pin, plug



Y-distributor 097627



Y-distributor 111696



Pin	Function
1	U_B
2	OA (FO1A)
3	0 V
4	OB (FO1B)
5	RST

Pin	Function
1	U_B
2	IA (FI1A)
3	0 V
4	IB (FI1B)
5	RST

Pin	Function
1	U_B
2	OA (FO1A)
3	0 V
4	OB (FO1B)
5	RST

Pin	Function
1	U_B
2	IA (FI1A)
3	0 V
4	IB (FI1B)
5	RST

Designation	Version	Order no.
Short-circuit plug	M12, 4-pin, plug	097645
Y-distributor M12 with connection cable	M12, 1x8-pin, 2x5-pin	111696
Y-distributor	M12, 1x8-pin, 2x5-pin	097627
Connection cable PVC 8-core, flying lead	M12, 8-core, 5 m	100177
	M12, 8-core, 10 m	100178
	M12, 8-core, 20 m	100179

Tip!

Additional accessories, particularly for series connection, can be found at www.euchner.de.

Inspection and service

Warning!

Loss of the safety function because of damage to the system.
In case of damage, the affected module must be replaced. Replacement of individual parts of a module (e.g. parts of the interlocking module) is not permitted.

Regular inspection of the following is necessary to ensure trouble-free long-term operation:

- Check the switching function (see section *Function test*)
- Check the secure fastening of the devices and the connections
- Check for soiling

No servicing is required; repairs to the device are only allowed to be made by the manufacturer.

Note:

The year of manufacture can be seen in the lower right corner of the rating plate.

Service

If service support is required, please contact:

EUCHNER GmbH + Co. KG

Kohlhammerstraße 16

D-70771 Leinfelden-Echterdingen

Service telephone:

+49 711 7597-500

E-mail:

info@euchner.de

Internet:

www.euchner.de

Declaration of conformity

More than safety.

CE EUCHNER

EUCHNER GmbH + Co. KG
Kohlhammerstraße 16
70771 Leinfelden-Echterdingen
Germany

EG-Konformitätserklärung
EC-Declaration of Conformity
CE-Déclaration de Conformité
CE-Dichiarazione di conformità
CE-Declaración de Conformidad

Original DE
Translation EN
Traduction FR
Traduzione IT
Traducción ES

117339-01-02/13

Die nachfolgend aufgeführten Produkte sind konform mit den Anforderungen der folgenden Richtlinien (falls zutreffend):
The beneath listed products are in conformity with the requirements of the following directives (if applicable):
Les produits mentionnés ci-dessous sont conformes aux exigences imposées par les directives suivantes (si valable)
I prodotti sotto elencati sono conformi alle direttive sotto riportate (dove applicabili):
Los productos listados a continuación son conforme a los requisitos de las siguientes directivas (si fueran aplicables):

I:	2006/42/EG	Maschinenrichtlinie
	2006/42/EC	*Machinery directive*
	2006/42/CE	*Directive Machines*
	2006/42/CE	*Direttiva Macchine*
	2006/42/CE	*Directiva de máquinas*
II:	2004/108/EG	EMV Richtlinie
	2004/108/EC	*EMC Directive*
	2004/108/CE	*Directive de Compatibilité électromagnétique*
	2004/108/CE	*Direttiva EMV*
	2004/108/CE	*Directiva CEM*

Die Schutzziele der Niederspannungsrichtlinie wurden gemäß Anhang I, Nr. 1.5.1 der Maschinenrichtlinie eingehalten.
The safety objetives of the Low-Voltage Directive comply with Annex I, No. 1.5.1 of the Machinery Directive.
Les objectifs de sécurité de la Directive Basse Tension sont conformes à l'annexe I, No. 1.5.1 de la Directive Machines
Gli obiettivi di sicurezza della Direttiva Bassa Tensione sono conformi a quanto riportato all'allegato I, No. 1.5.1 della Direttiva Macchine.
Los objetivos de seguridad de la Directiva de Bajo Voltaje cumplen con el Anexo I, No. 1.5.1 de la Directiva de Máquinas

Folgende Normen sind angewandt:
Following standards are used:
Les normes suivantes sont appliquées:
Vengono applicate le seguenti norme:
Se utilizan los siguientes estándares:

a:	EN 60947-5-3:1999 + A1:2005
b:	EN 1088:1995+A2:2008
c:	EN ISO 13849-1:2008
d:	EN ISO 13849-2:2012

Bezeichnung der Sicherheitsbauteile *Description of safety components* *Description des composants sécurité* *Descrizione dei componenti di sicurezza* *Descripción de componentes de seguridad*	**Type** *Type* *Type* *Tipo* *Typo*	**Richtlinie** *Directives* *Directive* *Direttiva* *Directivas*	**Normen** *Standards* *Normes* *Norme* *Estándares*	**Zertifikats-Nr.** *No. of certificate* *Numéro du certificat* *Numero del certificato* *Número del certificado*
Sicherheitsschalter *Safety Switches* *Interrupteurs de sécurité* *Finecorsa di sicurezza* *Interruptores de seguridad*	ESL...	I, II	a, b, c, d	UQS 117318

Benannte Stelle
Notified Body
Organisme notifié
Sede indicata
Entidad citada

NB 0035
TÜV Rheinland Industrie Service GmbH
Am Grauen Stein - 51105 Köln - Germany

Leinfelden, April 2013

EUCHNER GmbH + Co. KG
Kohlhammerstraße 16
70771 Leinfelden-Echterdingen
Germany

Dipl.-Ing. Stefan Euchner
Geschäftsführer
Managing Director
Gérant d'affaires
Direttore Generale
Director Gerente

i.A. Duc Binh Nguyen
Dokumentationsbevollmächtigter
Documentation manager
Responsable documentation
Responsabilità della documentazione
Agente documenta

Euchner GmbH + Co. KG
Kohlhammerstraße 16
D-70771 Leinfelden-Echterdingen
info@euchner.de
www.euchner.de

Edition:
119138-04-04/14
Title:
Operating Instructions Safety Systems ESL-IH-AR
(translation of the original operating instructions)
Copyright:
© EUCHNER GmbH + Co. KG, 04/2014

Subject to technical modifications; no responsibility is accepted for the accuracy of this information.

More than safety.

EUCHNER